

1/30

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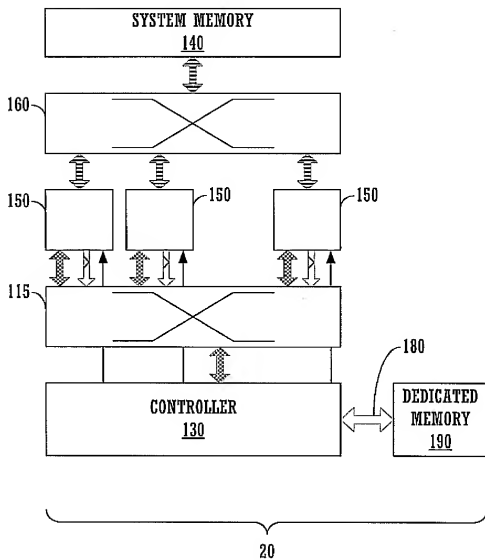


FIGURE 1

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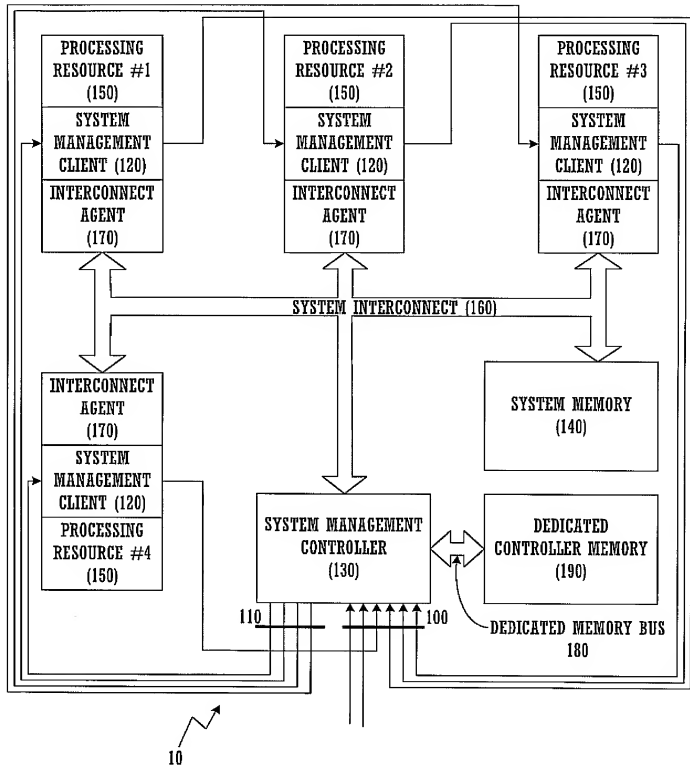


FIGURE 2

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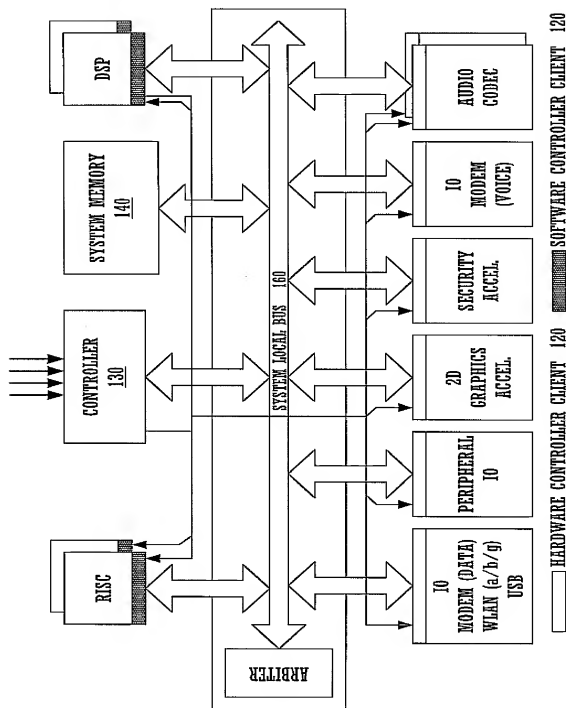


FIGURE 3

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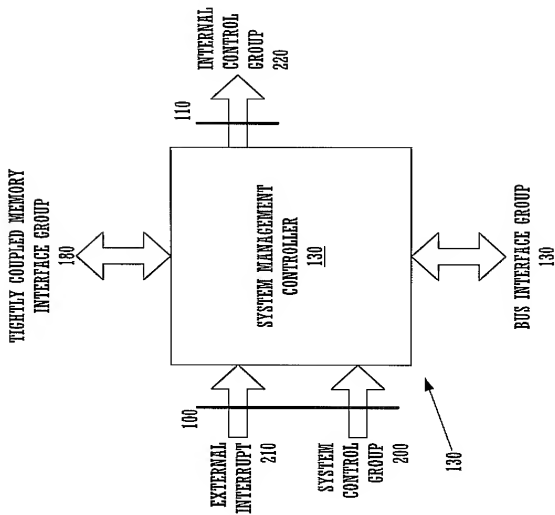


FIGURE 4

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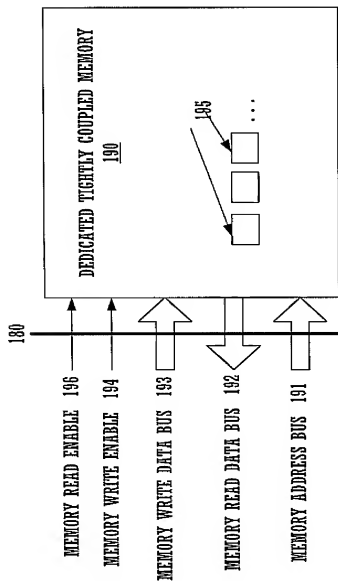


FIGURE 5

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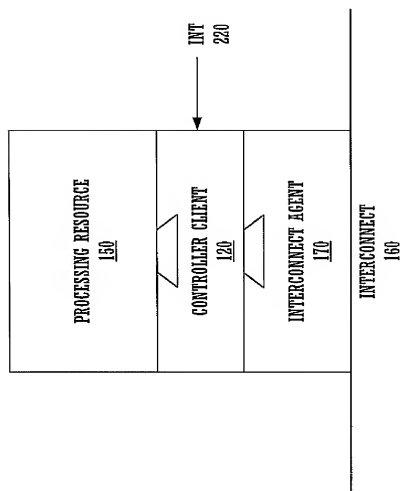


FIGURE 7

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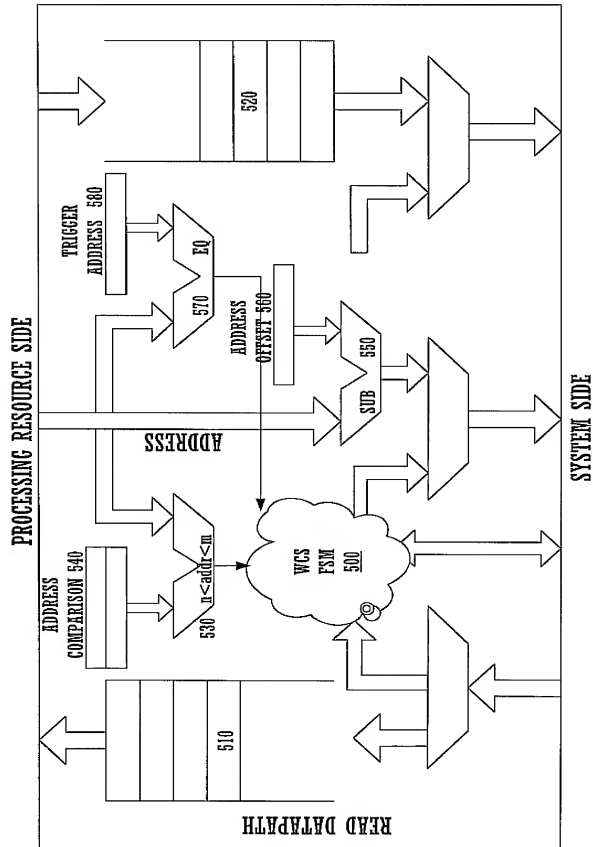


FIGURE 8



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WORD	BIT																																															
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																
0																																																
1																																																
2																																																
3	METRIC [1]																STATUS																															
4	METRIC [0]																																															
5	REFERENCE																																															
6	NEXT INDEX [1]																NEXT INDEX [0]																															
7	PREVIOUS INDEX [1]																PREVIOUS INDEX [0]																															

FIGURE 9A

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FIELD	TYPE	DESCRIPTION
STATUS.TYPE	UNSIGNED NIBBLE	DETERMINES THE TYPE OF THE WME
STATUS.FLAGS	bool[]	TYPE SPECIFIC WME FLAGS
METRIC[1:0]	UNSIGNED LONG[]	SCHEDULER METRICS
PREFERENCE	(VOID*)	A POINTER TO A THREAD CONTROL BLOCK WITHIN SYSTEM MEMORY
NextIndex[1:0]	UNSIGNED SHORT[]	TWO FORWARD POINTERS FOR AUTONOMOUS LINKED LISTS
PreviousIndex[1:0]	UNSIGNED SHORT[]	TWO BACKWARD POINTERS FOR AUTONOMOUS LINKED LISTS

FIGURE 9B

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WORD 0	BIT																																	
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
0	DEPENDENCY REFERENCE																																	
1	DEPENDENCY TIMEOUT																																	
2	SCHEDULER TIER ID																PENDINGQUEUED																STATUS	
3	METRIC [1]																																	
4	METRIC [0]																																	
5	PREFERENCE																																	
6	NEXT INDEX [1]																NEXT INDEX [0]																	
7	PREVIOUS INDEX [1]																PREVIOUS INDEX [0]																	

FIGURE 9C

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FIELD	TYPE	DESCRIPTION
DEPENDENCY REFERENCE	(void*)	OPTIONAL POINTER TO A SYNCHRONIZATION PRIMITIVE (MUTEX, SEMAPHORE etc.) UPON WHICH THIS THREAD IS DEPENDENT.
DEPENDENCY TIMEOUT	UNSIGNED LONG	OPTIONAL TIMEOUT FOR SYNCHRONIZATION BASED ON TEMPORAL STATE.
SCHEDULER TIER ID	UNSIGNED SHORT	INDEX OF WEAVER 1 MEMORY ELEMENT CONTAINING THE PARENT SCHEDULER TO WHICH THE SYNCHRONIZATION IS QUEUED.
STATUS TYPE	UNSIGNED NIBBLE	SET TO 1.
STATUS FLAGS	bool[]	WORK QUEUE STATUS FLAGS DETERMINING THE FOLLOWING STATUS: 0: PUSHED (THREAD HAS BEEN PUSHED INTO SCHEDULER QUEUE) 1: POPPED (THREAD HAS BEEN POPPED FROM SCHEDULER QUEUE) 2: DISPATCHED (THREAD HAS BEEN DISPATCHED)
Metric[1:0]	UNSIGNED LONG[]	SCHEDULER METRICS
preference	(void*)	A POINTER TO A THREAD CONTROL BLOCK WITHIN SYSTEM MEMORY
NextIndex[1:0]	UNSIGNED SHORT[]	TWO FORWARD POINTERS FOR AUTONOMOUS LINKED LISTS
PreviousIndex[1:0]	UNSIGNED SHORT[]	TWO BACKWARD POINTERS FOR AUTONOMOUS LINKED LISTS

FIGURE 9D

13/30

WORD	BIT																															
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	HEAD INDEX																NUMBER OF ELEMENTS															
1	PARENT INDEX																TOTAL THREAD ELEMENTS															
2	SCHED PUSH OP	SCHED POP OP	SCHED PUSH OP	METRIC POP OP	METRIC PUSH OP	METRIC POP OP	BUNDLE LIMIT										STATUS															
3	METRIC [1]																															
4	METRIC [0]																															
5	PREFERENCE																															
6	NEXT INDEX [1]																NEXT INDEX [0]															
7	PREVIOUS INDEX [1]																PREVIOUS INDEX [0]															

FIGURE 9E

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FIELD	TYPE	DESCRIPTION
HEAD INDEX	UNSIGNED SHORT	THE HEAD INDEX OF THE UNDERLYING QUEUE STRUCTURE.
NUMBER OF ELEMENTS	UNSIGNED SHORT	THE NUMBER OF ELEMENTS IN THE IMMEDIATELY UNDERLYING QUEUE STRUCTURE.
PARENT INDEX	UNSIGNED SHORT	POINTER TO THE PARENT SCHEDULER TIER OR DISPATCH QUEUE.
TOTAL THREAD ELEMENTS	UNSIGNED SHORT	THE TOTAL NUMBER OF THREAD ELEMENTS IN THE UNDERLYING QUEUE STRUCTURE (i.e. EXCLUDING SCHEDULER TIERS)
SCHEDULER PUSH OPERATOR	UNSIGNED CHAR	OPERATOR TO BE EXECUTED WHEN A THREAD IS PUSHED ONTO THE SCHEDULER TIER.
SCHEDULER POP OPERATOR	UNSIGNED CHAR	OPERATOR TO BE EXECUTED WHEN A THREAD IS POPPED FROM THE SCHEDULER TIER.
METRIC PUSH OPERATOR	UNSIGNED CHAR	SCHEDULER METRIC PROPAGATION OPERATOR FOR EXECUTION WHEN A THREAD IS PUSHED ONTO THE SCHEDULER TIER.
METRIC POP OPERATOR	UNSIGNED CHAR	SCHEDULER METRIC PROPAGATION OPERATOR FOR EXECUTION WHEN A THREAD IS POPPED FROM THE SCHEDULER TIER.
PARENT INDEX	UNSIGNED SHORT	POINTER TO THE PARENT SCHEDULER TIER OR DISPATCH QUEUE
BUNDLE LIMIT	UNSIGNED CHAR	INDEX OF WEAVER 1 MEMORY ELEMENT CONTAINING THE PARENT SCHEDULER TO WHICH THE SYNCHRONIZATION IS QUEUED.
STATUS.TYPE	UNSIGNED NIBBLE	SET TO: 2: DYNAMIC SCHEDULER TIER 3: LOCKED DYNAMIC SCHEDULER TIER 4: STATIC SCHEDULER TIER 5: ROOT SCHEDULER TIER
STATUS.FLAGS	bool[]	UNUSED
METRIC[1:0]	UNSIGNED LONG[]	SCHEDULER METRICS
pREFERENCE	(VOID*)	USED WITHIN DYNAMIC SCHEDULER TIERS TO IDENTIFY THE FINAL THREAD ELEMENT OF THE TIER.
PreviousIndex[1] NextIndex[1:0]	UNSIGNED SHORT[]	SUB-BLOCK WORK QUEUE LIST POINTERS.
PreviousIndex[1:0] NextIndex[0]	UNSIGNED SHORT[]	DUAL ATTACHED LINKED LIST FOR SCHEDULER PEERS.

FIGURE 9F

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WORD	BIT																															
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	PREEMPTION PRIORITY																ROOT SCHEDULER INDEX															
1	NUMBER OF ELEMENTS																HEAD INDEX															
2	FULL DEPTH								PROC ELEMENT ID								STATUS															
3	METRIC [1]																															
4	METRIC [0]																															
5																																
6	NEXT INDEX [1]																NEXT INDEX [0]															
7	PREVIOUS INDEX [1]																PREVIOUS INDEX [0]															

FIGURE 9G

16/30

FIELD	TYPE	DESCRIPTION
PREEMPTION PRIORITY	UNSIGNED SHORT	PRIORITY OF THE CURRENTLY EXECUTING THREAD. USED TO AVOID PRIORITY INVERSION.
ROOT SCHEDULER INDEX	UNSIGNED SHORT	INDEX OF THE MEMORY ELEMENT CONTAINING THE ROOT SCHEDULER AT THE HEAD OF THE SCHEDULING CONE FOR THIS RESOURCE.
NUMBER OF ELEMENTS	UNSIGNED SHORT	THE NUMBER OF THREAD ELEMENTS CURRENTLY HELD WITHIN THE DISPATCH QUEUE.
HEAD INDEX	UNSIGNED SHORT	THE HEAD INDEX OF THE DISPATCH QUEUE.
STATUS.TYPE	UNSIGNED NIBBLE	SET TO 6.
STATUS.FLAGS	bool[]	WORK QUEUE STATUS FLAGS.
METRIC[1]	UNSIGNED LONG	POWER DOWN ELIGIBILITY COUNTER.
METRIC[0]	UNSIGNED LONG	POWER DOWN ELIGIBILITY THRESHOLDS.
PreviousIndex[1] NextIndex[1]	UNSIGNED SHORT[]	SUB-BLOCK WORK QUEUE LIST POINTERS.
PreviousIndex[0] NextIndex[0]	UNSIGNED SHORT[]	INTER DISPATCH QUEUE LIST POINTERS.

FIGURE 9H



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WORD		BIT																															
		HEAD INDEX										NUMBER OF ELEMENTS																					
0		31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1																																	
2																																	
3																																	
4																																	
5																																	
6		STATUS																															
7																																	
		NEXT INDEX (0)																															
		PREVIOUS INDEX (0)																															

FIGURE 9I

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FIELD	TYPE	DESCRIPTION
HEAD INDEX	UNSIGNED SHORT	POINTER TO THE HEAD INDEX OF THE PENDING LIST.
NUMBER OF ELEMENTS	UNSIGNED SHORT	NUMBER OF PENDING LIST ELEMENTS.
STATUS TYPE	UNSIGNED NIBBLE	SET TO 7.
STATUS FLAGS	bool[]	UNUSED
PreviousIndex[0] NextIndex[0]	UNSIGNED SHORT[]	INTER PENDING QUEUE LIST POINTERS.

FIGURE 9J

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WORD	BIT																															
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0																																
1	DEPENDENCY TIMEOUT																															
2	STATUS																															
3																																
4																																
5	METRIC [0]																															
6	NEXT INDEX [1]																NEXT INDEX [0]															
7	PREVIOUS INDEX [1]																PREVIOUS INDEX [0]															

FIGURE 9K

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FIELD	TYPE	DESCRIPTION
DEPENDENCY TIMEOUT	UNSIGNED LONG	TIMEOUT FOR COMPARISON WITH THE THREAD CURRENTLY BEING INSERTED
TYPE	UNSIGNED CHAR	SET TO 8.
FLAGS	bool[]	UNUSED
METRIC[1:0]	UNSIGNED LONG[]	SCHEDULER METRICS
NextIndex[1:0]	UNSIGNED SHORT[]	TWO FORWARD POINTERS FOR AUTONOMOUS LINKED LISTS.
PreviousIndex[0]	UNSIGNED SHORT[]	TWO BACKWARD POINTERS FOR AUTONOMOUS LINKED LISTS.

FIGURE 9L

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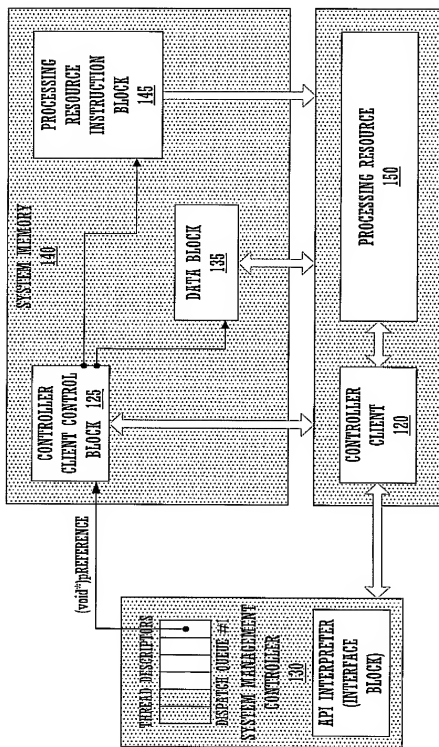


FIGURE 10

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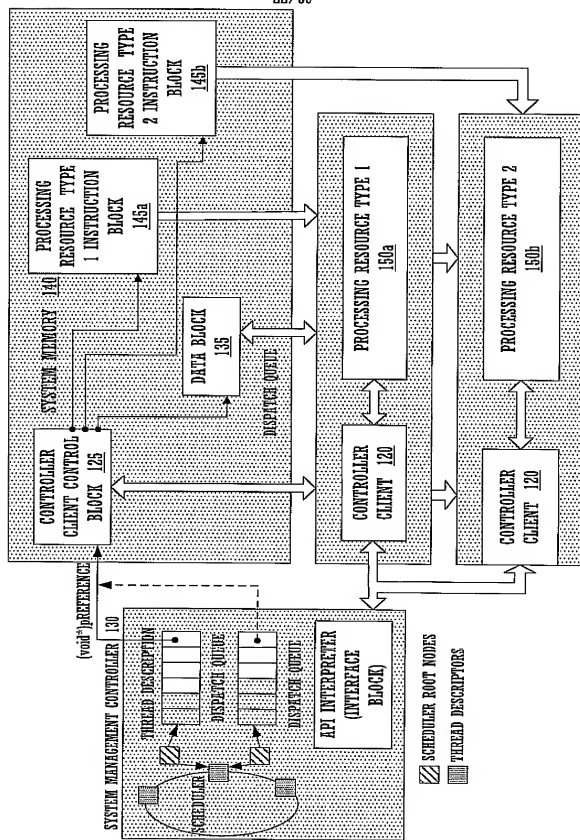


FIGURE 11

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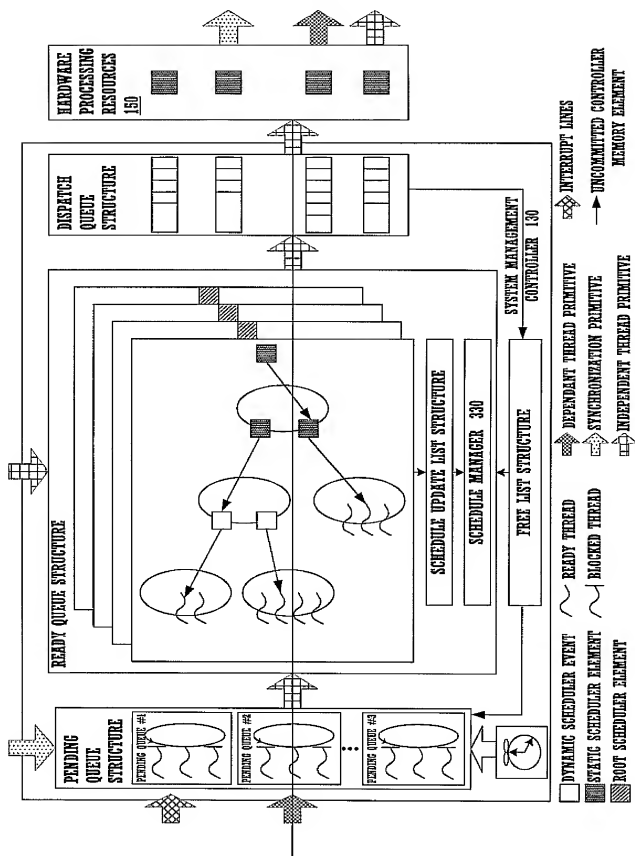


FIGURE 12

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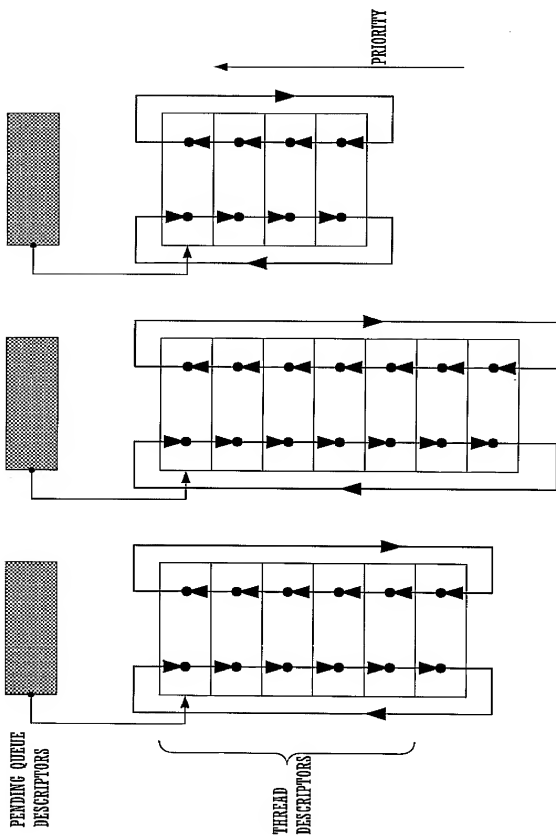


FIGURE 13



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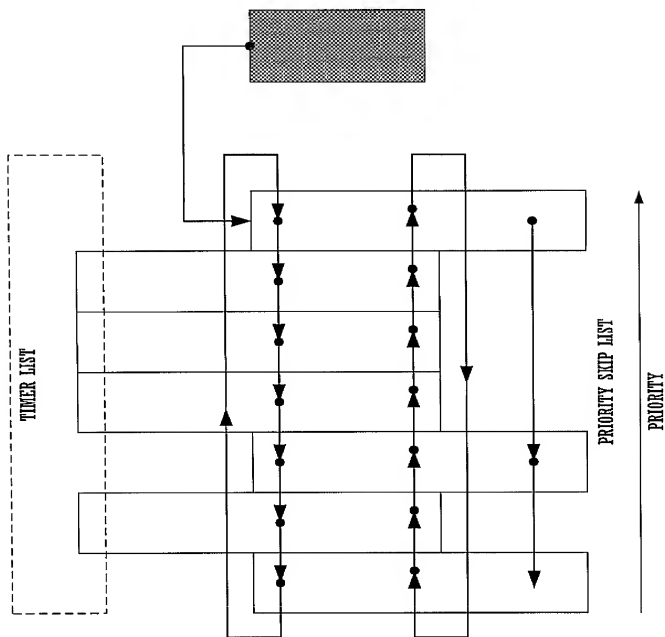


FIGURE 14

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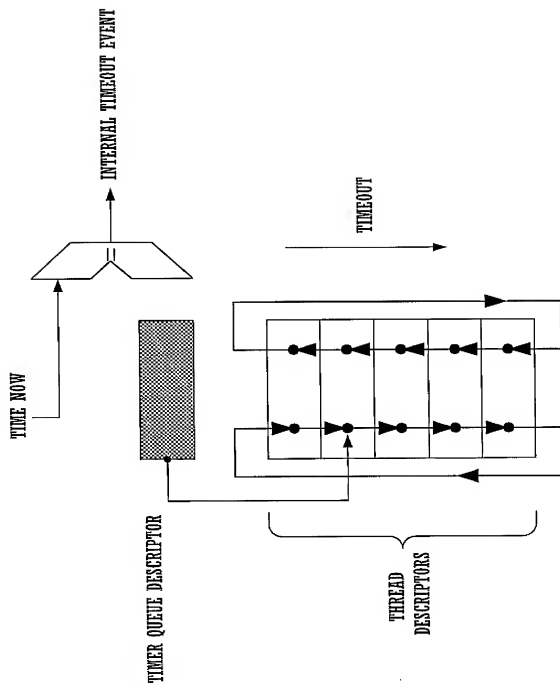


FIGURE 15

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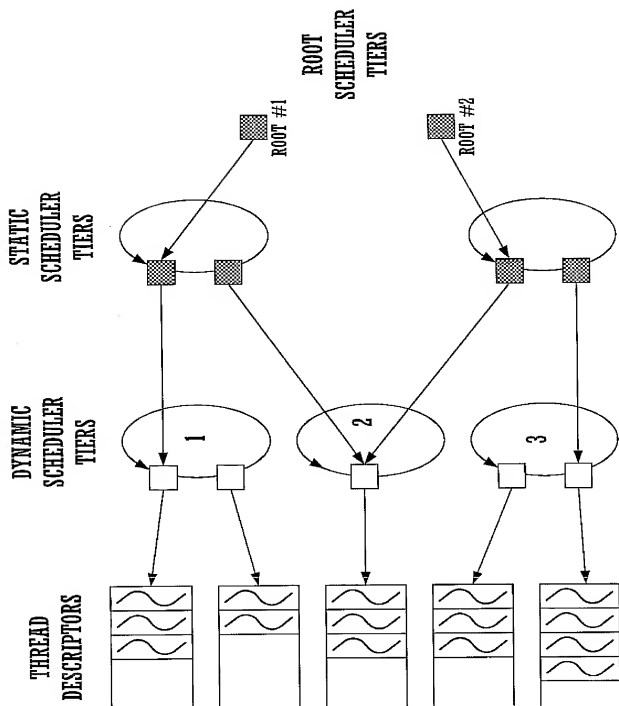


FIGURE 16

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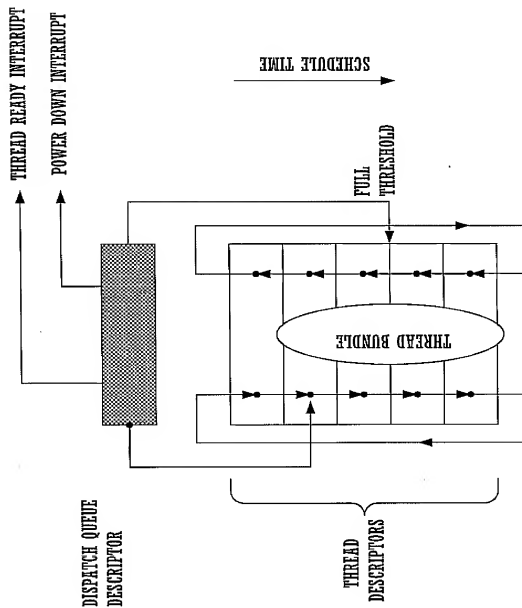


FIGURE 17

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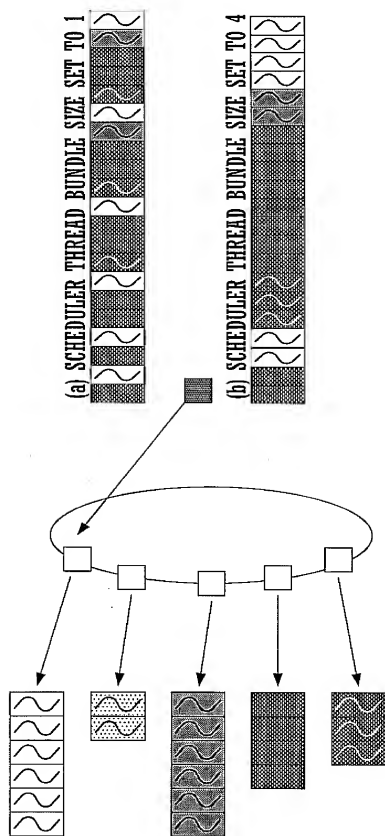


FIGURE 18

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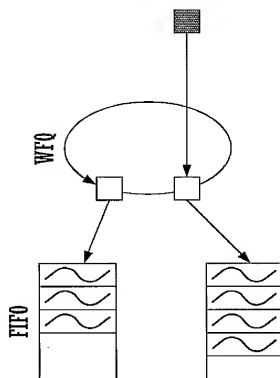


FIGURE 19